WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

US Army Corps of Engineers ® Seattle District

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Electron Hydro Diversion Repair, Spillway Replacement and Bank Protection, Nationwide Permit #3

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Fischer, Thom			
2b. Organization (If applicable)			
Electron Hydro, LLC			
2c. Mailing Address (Street or PO Box)			
1800 James Street, Suite 201			
2d. City, State, Zip			
Bellingham, WA. 98225			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(360) 738-9999	(360) 739-9777	(360) 733-3056	thom@electronhydro.com

[1]Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Spens, Chris			
3b. Organization (If applicable)			
Electron Hydro, LLC			
3c. Mailing Address (Street or PO Box)			
1800 James Street, Suite 201			
3d. City, State, Zip			
Bellingham, WA. 98225			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
(360) 738-9999	(360) 746-3435	(360) 733-3056	cspens@tollhouseenergy.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
( )	( )	( )	

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

None, 38400 MOOSE JUNCTION RD E, 38400 GRID OF S 3, T 16 N, R 6 E WM

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Graham, WA 98338

5d. County [help]

Pierce Co. WA

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NW 1/4	03	16N	06E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

46.90586N lat. / -122.03954W long. NAD83

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

0616032001

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
ORM TIMBER FUND III INC	19950 7TH AVE NE STE 200 POULSBO WA 98370-7405	0616031000
ORM TIMBER FUND III INC	19950 7TH AVE NE STE 200 POULSBO WA 98370-7405	0617343001
JOHN HANCOCK LIFE INSURANCE COMPANY ETAL	17700 SE MILL PLAIN BLVD VANCOUVER WA 98683-7580	0617331000

5i. List all wetlands on or adjacent to the project location. [help]

None

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Puyallup River

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The project area itself is a built environment consisting of a diversion structure within the river surrounded by associated infrastructure. The vegetation and habitat beyond the development footprint consists of low elevation coniferous forest lands with a native plant understory. With the exception of the immediate riparian corridor upstream and downstream of the project, the surrounding lands are managed for commercial timber production.

5m. Describe how the property is currently used. [help]

The property is occupied by the Electron hydroelectric project water diversion headworks.

5n. Describe how the adjacent properties are currently used. [help]

Adjacent private properties are used for commercial timber production with some limited permit-only entry for seasonal recreational use, mostly hunting.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

Structures and facilities on the property at the Project site include an access road network, diversion structure, riverbank protection, fish ladder, intake manifold and head gate, sediment and rock return chutes, flume box with railroad on top, control and facilities buildings and stockpile storage and lay down areas. Overhead facilities are limited to a few equipment electrical services and a suspended waterline crossing the river. Underground facilities are limited to foundations for the various Project structures.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

The site is surrounded by private gated property. Access requires accompaniment by Electron Hydro personnel. Please contact Thom Fischer at 360-739-9777 to arrange access.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

See Attached Sheet for answer to 6a.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

See Attached Sheet for answer to 6b.

6c. Indicate the project category. (Check all that apply) [help]

- ☐ Commercial
- ☐ Residential
- ☐ Institutional
- ☐ Transportation
- ☐ Recreational
- ☒ Maintenance
- ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

- ☐ Aquaculture
- ☒ Bank Stabilization
- ☐ Boat House
- ☐ Boat Launch
- ☐ Boat Lift
- ☐ Bridge
- ☐ Bulkhead
- ☐ Buoy
- ☒ Channel Modification
- ☐ Culvert
- ☐ Dam / Weir
- ☐ Dike / Levee / Jetty
- ☐ Ditch
- ☐ Dock / Pier
- ☐ Dredging
- ☐ Fence
- ☐ Ferry Terminal
- ☐ Fishway
- ☐ Float
- ☐ Floating Home
- ☐ Geotechnical Survey
- ☐ Land Clearing
- ☐ Marina / Moorage
- ☐ Mining
- ☐ Outfall Structure
- ☐ Piling/Dolphin
- ☐ Raft
- ☐ Retaining Wall (upland)
- ☐ Road
- ☐ Scientific Measurement Device
- ☐ Stairs
- ☐ Stormwater facility
- ☐ Swimming Pool
- ☐ Utility Line
- ☒ Other: Diversion repair, spillway replacement and shoreline protection reinforcement.

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

See Attached Sheet for answer to 6e.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start date: June 1, 2017 End date: October 30, 2017 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

Approximately $3.6M

6h. Will any portion of the project receive federal funding? [help]

- If yes, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area. (If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☒ Not applicable

7b. Will the project impact wetlands? [help]

☐ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☐ Not applicable

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

The diversion repair, spillway replacement and shoreline protection reinforcement project would be constructed during the summer low flow period during the work window established by resource regulatory agencies as July 15 through September 15. Any fish that may be present at the start would be relocated from the work area and barred from re-entry during the cofferdam construction. The spillway work area would be isolated from river flows by cofferdams. The existing fish ladder will remain open and be maintained and accessible. The existing inflatable Obermeyer steel spillway will be replaced by an air inflated rubber bladder. The inflatable bladder spillway would allow for natural releases and transport of bedload downstream. Construction impacts will be minimized primarily by isolating the work area from the river.
(See cofferdam detail on sheets C-3, C-4 and C-5)

8b. Will your project impact a waterbody or the area around a waterbody?

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☒ Not applicable

There would be no net change in the diversion structure height, length, pool elevation, head, diversion quantity or generation. As a result, there would not be any increase in impacts to the river, but there would be a net decrease due to improved sediment passage in a more natural manner.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

Construction mitigation is primarily intended to prevent potentially harmful materials from entering the aquatic environment.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Construct cofferdam(s)	Puyallup	In	Temporary	7,700 (removed)	300 lin. ft
Place concrete foundation and abutment walls for bladder spillway	Puyallup	In	Permanent	1,700	108 ft
Construct retaining walls for scour protection	Puyallup	In	Permanent	1,160	245ft
Repair/replace bank protection	Puyallup	In	Permanent	7,700	900ft
Excavate channel	Puyallup	In	Permanent	11,850 (removed)	1000ft

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

Concrete will be placed for the bladder foundation, abutment walls, and the bank protection. Concrete will be made and produced on site from imported gravel materials. Cofferdams are built with in-situ materials to form protection berms and isolate the work area from the river. Excess granular materials removed from the work area will be stockpiled onsite and used for Phase II construction projects at the headworks. Concrete retaining walls and an intake sill wall with a coarse trash rack will also be constructed in the waterbody and in the area isolated by the cofferdams. The retaining walls are necessary for scour protection immediately below the bladder spillway.

Select granular backfill material (1960cyd) for the walls will be imported or selected from the onsite excavation. Rock riprap for the bank protection (7700cyd) will either be from the onsite excavation of the existing bank and/or imported from a nearby commercial quarry.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Riverbed material will be excavated with tracked excavators. They will place the material into articulated off road dump trucks which will then be dumped at the designated stockpile and crushing area as shown on the plans. Excavators will sort the materials so the larger cobbles and boulders can be used for the bank stabilization and backfill. Materials smaller than cobble size will be sorted and crushed for re-use on the project as concrete aggregate.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
WDFW	Matt Curtis	Matthew.Curtis@dfw.wa.gov	Dec. 2016
NOAA/NMFS	Keith Kirkendall	keith.kirkendall@noaa.gov	Jan. 2017
USFWS	Mark Celedonia	mark_celedonia@fws.gov	Mar. 2017
Puyallup Tribe	Russ Ladley	mailto:russ.ladley@puyalluptribe.com	Dec. 2016

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/

☐ Yes ☒ No

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

17110014

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm to find the WRIA #.

WRIA 10 Puyallup-White

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Rural ☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ High Intensity

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: The 2014 Stormwater Management Manual for Western Washington

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

Commercial timber production, forestry.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Chinook Salmon
Steelhead
Bull trout

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

Chinook Salmon
Steelhead
Bull Trout
Freshwater, Riparian

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with Pierce County (lead agency). The expected decision date is April, 2017.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

- ☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?
- ☐ Other:

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): Repair, Replace & Maintain

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

You must submit a check for $150 to Washington Department of Fish and Wildlife, unless your project qualifies for an exemption or alternative payment method below. **Do not send cash.**

Check the appropriate boxes:

☐ $150 check enclosed. Check #_____
Attach check made payable to Washington Department of Fish and Wildlife.

☐ My project is exempt from the application fee. (Check appropriate exemption)_____
- ☐ HPA processing is conducted by applicant-funded WDFW staff.
  Agreement #_____
- ☐ Mineral prospecting and mining.
- ☐ Project occurs on farm and agricultural land.
  (Attach a copy of current land use classification recorded with the county auditor, or other proof of current land use.)
- ☐ Project is a modification of an existing HPA originally applied for, prior to July 10, 2012.
  HPA #_____

Washington Department of Natural Resources:

☐ Aquatic Use Authorization
Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources.
Do not send cash.

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard permits:

☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. TAF (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. TAF (initial)

Thom A. Fischer	Thom A. Fischer	Apr 14, 2016
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

~~Tom Szymoniak~~ Chris Spens	Tom Szymoniak Chris Spens	~~Apr 14, 2016~~ 3/27/2017
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]
Not required if project is on existing rights-of-way or easements.

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Electron Hydro, LLC, by Thom A. Fischer, Manager	Thom A. Fischer	Apr 14, 2016
Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.
ORIA publication number: ENV-019-09 rev. 09/2015

ELECTRON DRAFT JARPA APPLICATION

6a. Briefly summarize the overall project.

The purpose of the project is to repair the Electron wooden diversion apron structure, replace the deteriorated spillway and reinforce the existing shoreline protection. The diversion repairs are needed as soon as possible to prevent further damage to the structure. The spillway replacement affords better management of bedload; consistent with the original design intent. Further, repair and replacement allows observation and collection of sediment data prior to finalizing the downstream fish passage project.

This project consists of the repair and replacement of facilities associated with a 113 year-old wooden diversion structure. The existing 30ft wide by 3ft deep Obermeyer gate spillway system and wooden apron would be replaced with a 70ft wide by 12ft deep inflatable rubber bladder on a concrete foundation. The structure is built within the existing footprint and alignment of the original 200ft wide diversion. Approximately 35% of the wooden diversion/spillway structure would be replaced. The spillway was previously replaced in the mid 1900's and was last replaced in 2010. Replacement is necessary as the spillway structure is failing and no longer performs as originally intended.

The replacement bladder spillway would follow nearly the same operational procedure as the existing Obermeyer spillway. The replacement spillway would maintain a pool elevation sufficient to support diversions for hydroelectric generation and the upstream fish passage. The replacement spillway would maintain the existing diversion crest and pool elevation and would not increase hydraulic head, water diversion quantity or generation capacity.

When inflated, the replacement spillway bladder would maintain an adequate pool during low and moderate flows. During high flows the spillway bladder could be deflated all or in part as necessary to allow the natural passage of high flows and sediment bedload. A 3ft radial gate and pipe will also be constructed within the left abutment wall to facilitate sluicing of sand and debris during low to moderate flows. The sluice is designed to accommodate approximately 120cfs and discharge just below the bladder. The radial gate will be connected to a slotted pipe built at the base of the trash rack. This slotted pipe will allow removal of fine sediments in front of the intake without having to deflate the bladder spillway. As river flows increase, the rubber bladder will automatically partially deflate to maintain a constant pool level at the diversion.

Additional work would be performed to repair, reinforce and replace the existing shoreline protection structures. These existing protections are not presently adequate to protect upstream and downstream banks when the river bed naturally re-profiles. The proposed work is comprised of concrete retaining walls and rip-rap.

The project would represent the third reconstruction of the spillway in the history of the diversion and would increase the hydraulic capacity of the spillway to reasonably pass the 100-year flood event within the confines of the river bank at the diversion location. The diversion repairs, replacement spillway and reinforced shoreline protection would allow the diversion to operate as originally intended.

6b. Describe the purpose of the project and why you want or need to perform it.

Project Purpose
The purpose of the project would be to repair the Electron Hydro diversion, replace the existing spillway and repair and reinforce existing shoreline protection structures.

Problem Statement

The diversion and spillway have been damaged by recent high flow events that have occurred within the past few years. The condition of the diversion is a result of large debris impacting and hanging up on the structure during these events. Furthermore, the spillway does not have capacity to pass these flows and debris laden water overtops the diversion structure. The wooden apron has deteriorated and gaps have opened between sections which has exacerbated scour of the timber cribbing, particularly near the spillway.

The spillway and apron must be replaced to prevent further damage. The inflatable rubber spillway allows better management of sediment and bedload which is vital to the future operation of the fish and sediment exclusion project which is planned as the second phase of the project. It is imperative that a period of monitoring and observation occur prior to finalizing the Phase II facilities.

Existing Diversion

The existing 113-year-old wooden diversion is 12ft high and 200ft wide. The crest of the diversion is at elevation 1620.72. The existing spillway consists of three 10ft wide Obermeyer spill gates. When the gates are laid open they provide an approximately 30ft. wide by 3ft. deep spillway opening with a sill elevation of 1617.17. The spillway and generation flume intake are both located on the left-bank. The intake opening (headgate) begins approximately 40ft. upstream of the crest of the diversion and has a base elevation at 1615.74. The intake is separated into 13 bays each with a four-foot width. There is no trash rack at the intake and debris often enters the flume or lodge against the frames. The intake is at a lower elevation than the spillway which directs bedload directly into the flume which must be managed with the two existing rock chutes.

There is a fish ladder on the right-bank of the diversion that was installed in 2001. The ladder provides for upstream passage.

Project Objectives

- Restore the structural integrity of the diversion, spillway and shoreline protection. Replace the spillway for the third time with an inflatable bladder.
- Maintain an adequate pool and pass large flows through spillway when debris that could overtop the diversion is mobilized.
- Keep the intake on the left bank, and fish passage on the right bank

obstruction free. Install a coarse trash track and concrete sill to prevent large woody debris and boulders from entering the flume.
- Install and operate a sand sluice and slotted pipe to clear fine sediment from the front of the intake.
- Reduce the risk of river overtopping banks and flowing around the diversion and fish ladder.
- Reduce the risk of flood damage to facilities.
- Improve the overall reliability of power generation facilities.
- Improve the overall reliability of the upstream fish passage.
- Observe and collect data to finalize the fish screen and sediment exclusion project.

Alternatives Considered

1. No action. Operate as is with no repair or maintenance. Erosion and deterioration continue, problems remain, and operations are inhibited. Not acceptable.
2. Repair the wooden apron structure and replace the Obermeyer gates. This option would not allow the project to pass large flows that could further damage the diversion through entrained debris and continue overtopping and damage to the diversion. Does not meet project objectives.
3. Develop a deeper spillway system within the existing 30ft wide spillway. There would be insufficient cross sectional area to develop adequate hydraulic capacity to meet the project objectives.
4. Replace the Obermeyer gates and damaged wooden apron with a deeper and wider spillway and protect shoreline. This is the preferred alternative and the Project as described herein. This proposes utilizing a 12ft deep by 70 ft wide inflatable rubber bladder spillway with upstream and downstream bank protection. The spillway can be fully deflated during high storm events to pass bedload and reduces the overtopping of the diversion structure.

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used.
- **Identify where each element will occur in relation to the nearest waterbody.**
- **Indicate which activities are within the 100-year floodplain.**

(See project plan schematics, included with the JARPA Application)

Site Preparation, June 1 to July 14, 2017:

Prior to the in-water work window all materials, equipment, construction support elements and supplies would be brought to the site. Set-up and installation of temporary support facilities would be completed. All upland site preparation would be concluded before the in-water work window.

In-water Work, July 15 to September 15, 2017

Exclude fish exclusion from the work site for each phase of the cofferdam construction would begin. Cofferdam construction would take 3-5 days using tracked excavators and smaller equipment. A temporary bypass channel would be created on the right bank for routing of the river flow. Once established, the work areas would be kept dry via pumping as necessary. Demolition of the diversion structure and excavation of the spillway foundation footprint would follow. Excavation work would likewise begin where necessary to install shoreline protection reinforcement. All primary excavation would take about 7 to 10 days to complete.

Spillway foundation and abutment walls as well as shoreline reinforcement construction would take about five weeks. Installation of the spillway bladder and operational testing would take one to two weeks.

Simultaneously, the downstream channel would be excavated, bank raised and rip-rap replaced along the toe and within the channel. The existing rip-rap materials would be re-used and supplemented as needed to armour the bank for scour protection. Once the bladder spillway foundation is completed and the abutment walls started, the upstream area would be excavated. This may take 10 to 15 days to excavate.

The last week of the in-water construction period would be to complete all operational elements of the bladder and thereafter to remove the cofferdams.

Close out, September 16th to October 30, 2017:

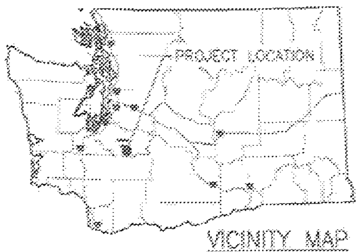
Over the last 6 weeks the project would involve finishing all upland components of the shoreline protection reinforcement, de-mobilizing and removing temporary facilities essential for construction and restoring the site to a stable condition for the wet season.

ELECTRON HYDRO, LLC

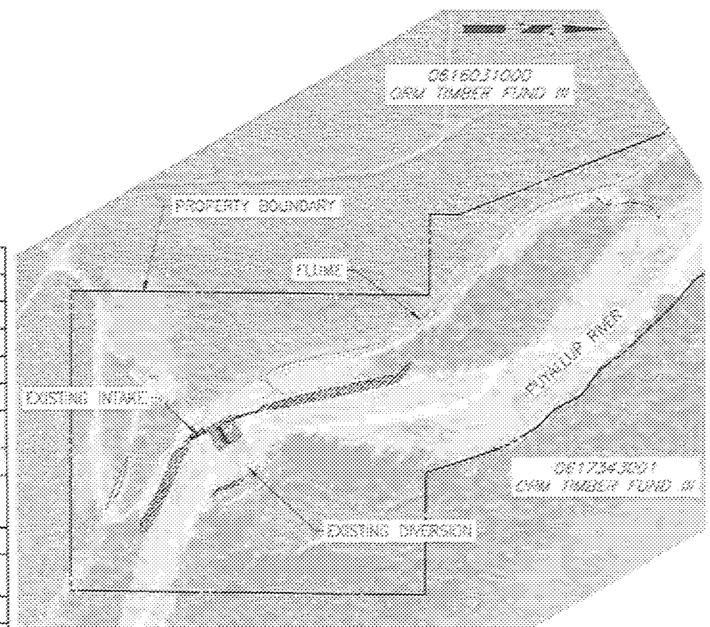
DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

PIERCE COUNTY, WA

MARCH 2017



VICINITY MAP
NTS



LOCATION MAP
NTS

SHEET INDEX

Sheet	Drawing #	Title
1	G-1	Cover Sheet and Index
2	G-2	Legend and Notes
3	G-3	Existing Conditions
4	G-4	General Site Plan Phase I
5	G-5	Sediment and Water Pool Zones
6	C-1	Temporary Site Facilities and Boundaries
7	C-2	Site Work and Grading Plan
8	C-3	Temporary Cofferdam and Water Management Phasing
9	C-4	Temporary Cofferdam Plan and Profile
10	C-5	Temporary Cofferdam Section and Details
11	C-6	Bladder Spillway Plan
12	C-7	Bladder Spillway Sections
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14	C-9	Rock Chute #1 Plan and Profile
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19	C-14	Bank Protection- Downstream Section and Details
20	C-15	Details

APPLICANT/OWNER: ELECTRON HYDRO, LLC
OWNER ADDRESS: 1800 JAMES ST
BELLINGHAM, WA
TAX LOTS: 0616032001 0617343001
ZONING: R20
LATITUDE: 46° 54' 18" N
LONGITUDE: 122° 02' 18" W
PROPOSED PROJECT: DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION
IN: PUYALLUP RIVER
NEAR: ORTING, WA
COUNTY: PIERCE
STATE: WA

GENERAL NOTES

SEQUENCE OF CONSTRUCTION

1. Mobilize equipment and materials to site.
2. Install erosion and sediment control features.
3. Clear construction work areas.
4. Construct all temporary upland facilities, laydown and storage areas.
5. Stage for the in-water work window (July 15–Sept. 15).
6. Construct temporary cofferdams in accordance with these plans to isolate and protect the work area.
7. Remove the existing spillway and a portion of the diversion structure apron.
8. Install and construct the new air-inflated rubber spillway. Commission and test the new bladder system.
9. Construct the downstream and upstream bank protection.
10. Remove temporary cofferdams and restore river system as shown in these plans.
11. Stabilize all disturbed areas.

Electron HYDRO

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

COVER SHEET AND INDEX

PIERCE COUNTY WASHINGTON

DATE: 03/28/2017

SHEET 1 OF 20

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Conservation Measures:

1. All equipment shall be visually inspected (including the undercarriages) to ensure that they are clean and free of any external grease, oil, petroleum products, hydraulic fluid, coolants, or other deleterious materials, and in proper working order with no fuel or oil leaks or drips.

2. All equipment used in the in-water work zone shall use the Ecoterra Hydraulic oil or equivalent.

3. Inspect equipment daily for leaks, accumulations of grease, etc.

4. No equipment shall be parked within the in-water work boundary. Maintenance, repairs, fueling and servicing shall be only performed in the upper laydown area as shown on the drawings.

5. No solvents or other chemicals shall be used in or over the water.

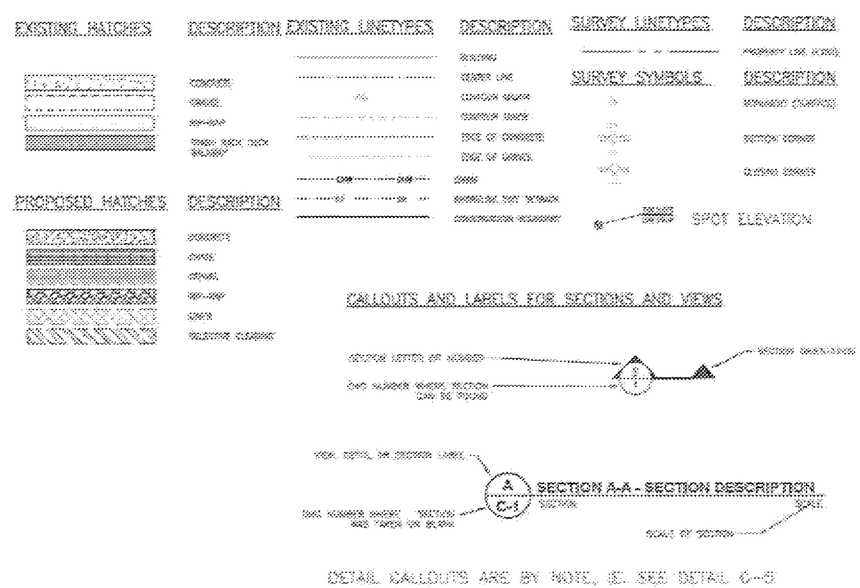
6. Two oil absorbing floating booms, appropriate for the size of the work area, will be available onsite whenever heavy equipment operates when working in-water or within 150 feet of open water and there is a potential for hazardous materials to enter surface waters. The booms will be stored in a location that facilitates immediate deployment in the event of a spill. A spill kit and other materials and equipment necessary for spill cleanup will be kept on site and readily available.

7. In the event of a discharge of oil, fuel or chemicals into waterways or onto land with a potential for entry into waters, including areas in-water, immediately begin and complete containment and clean-up efforts, taking precedence over normal work. Clean-up shall include proper disposal of any spilled material and used clean-up materials.

8. All waste material and construction debris shall be collected and properly disposed of at an approved facility. Any leftover construction materials shall be removed from the site. All floating debris generated during the proposed activities shall be retrieved, removed, and disposed of at an approved upland location.

9. Utilize and maintain the concrete washout located in the upper laydown area. No concrete equipment shall be cleaned within the in water work boundary area.

GENERAL LEGEND



DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

LEGEND AND NOTES

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 03/29/2017

SHEET 2 OF 23

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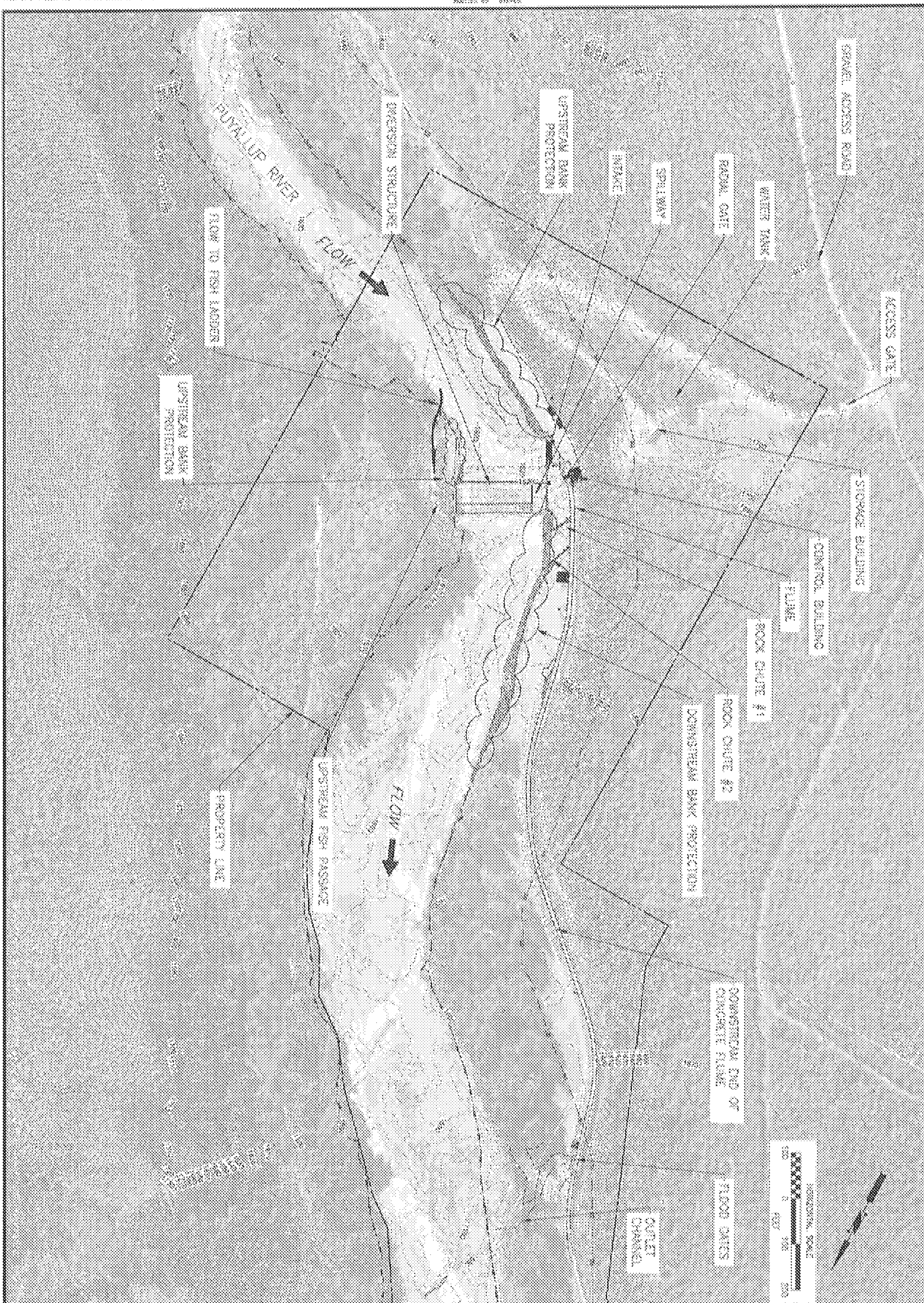

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

EXISTING CONDITIONS

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 03/28/2017

SHEET 3 OF 20

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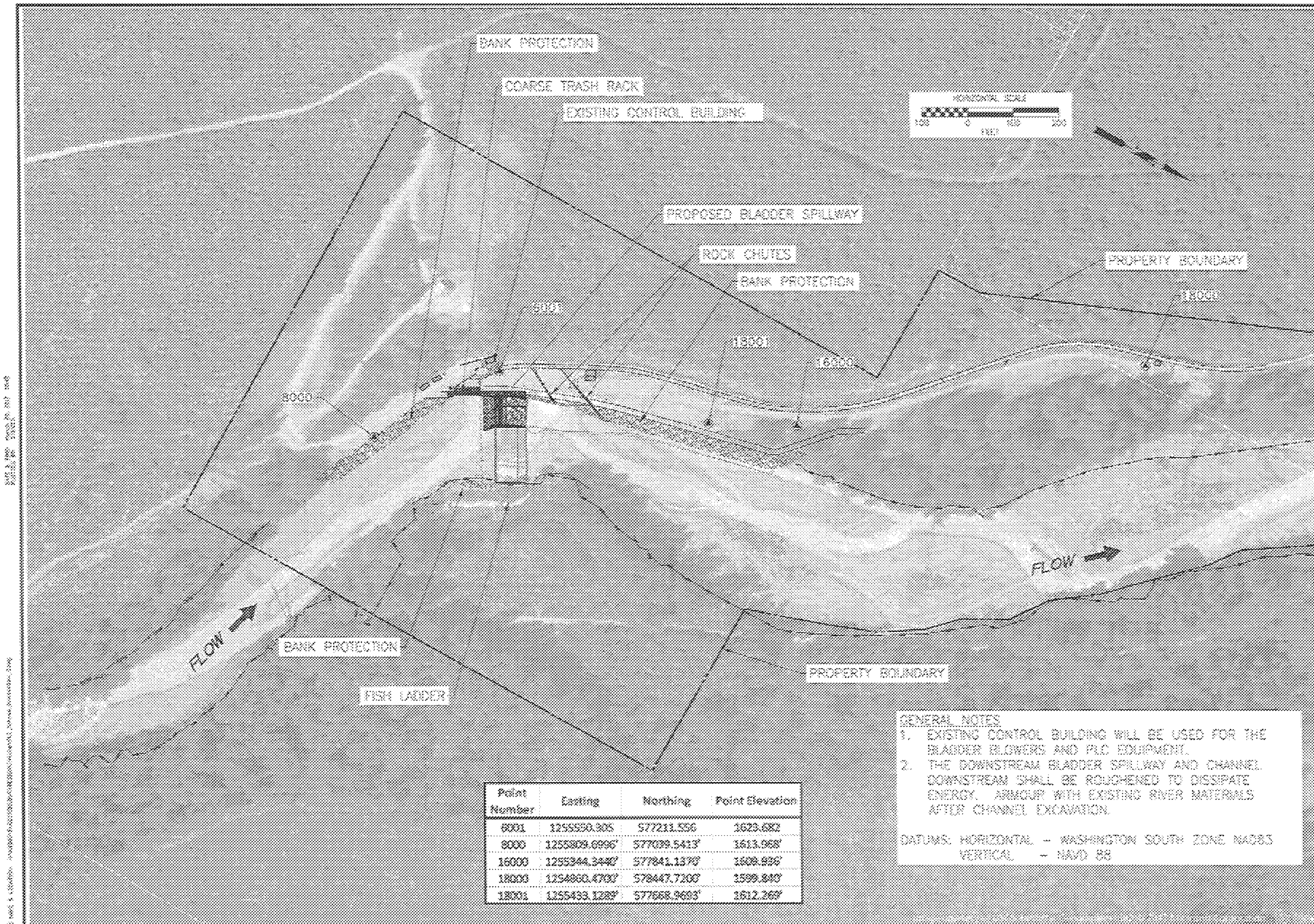
NO.	DATE	REVISION	BY	CK



Point Number	Easting	Northing	Point Elevation
8001	1255550.305	577211.556	1623.682
8000	1255809.6996'	577039.5413'	1613.968'
16000	1255344.3440'	577841.1370'	1609.836'
18000	1254860.4700'	578447.7200'	1599.840'
18001	1255433.1289'	577668.9693'	1612.269'

GENERAL NOTES
1. EXISTING CONTROL BUILDING WILL BE USED FOR THE BLADDER BLOWERS AND PLC EQUIPMENT.
2. THE DOWNSTREAM BLADDER SPILLWAY AND CHANNEL DOWNSTREAM SHALL BE ROUGHENED TO DISSIPATE ENERGY. ARMOUR WITH EXISTING RIVER MATERIALS AFTER CHANNEL EXCAVATION.

DATUMS: HORIZONTAL – WASHINGTON SOUTH ZONE NAD83
VERTICAL – NAVD 88

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

GENERAL SITE PLAN PHASE I

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 03/28/2017

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General Notes

- Lowering of the bladder spillway will unravel accumulated sediment from the pool upstream of the diversion structure.
- Extent of the sediment unraveling zone is based on distance required to adjust riverbed slope, bedload transport, and bed armoring.
- Actual alignment and extent of sediment unravel zone will vary dynamically over time. Sediment unraveling process is expected to follow the thalweg.
- The most dynamic zone will be within 300 ft upstream of the diversion. Maximum extent of sediment unraveling will occur only during large river flow events (i.e. greater than 8,000 cfs).
- Channel will be pre-shaped during in-water work.
- Approximate water storage upstream of the diversion coincides with maximum potential storage when accumulated sediment is completely unraveled. However, water storage may be less than the maximum possible value due to sediment accumulation behind the diversion structure and bladder spillway.
- A scour pool will form downstream of the spillway on east bank.

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

SEDIMENT AND WATER POOL ZONES

PIERCE COUNTY WASHINGTON

Electron HYDRO

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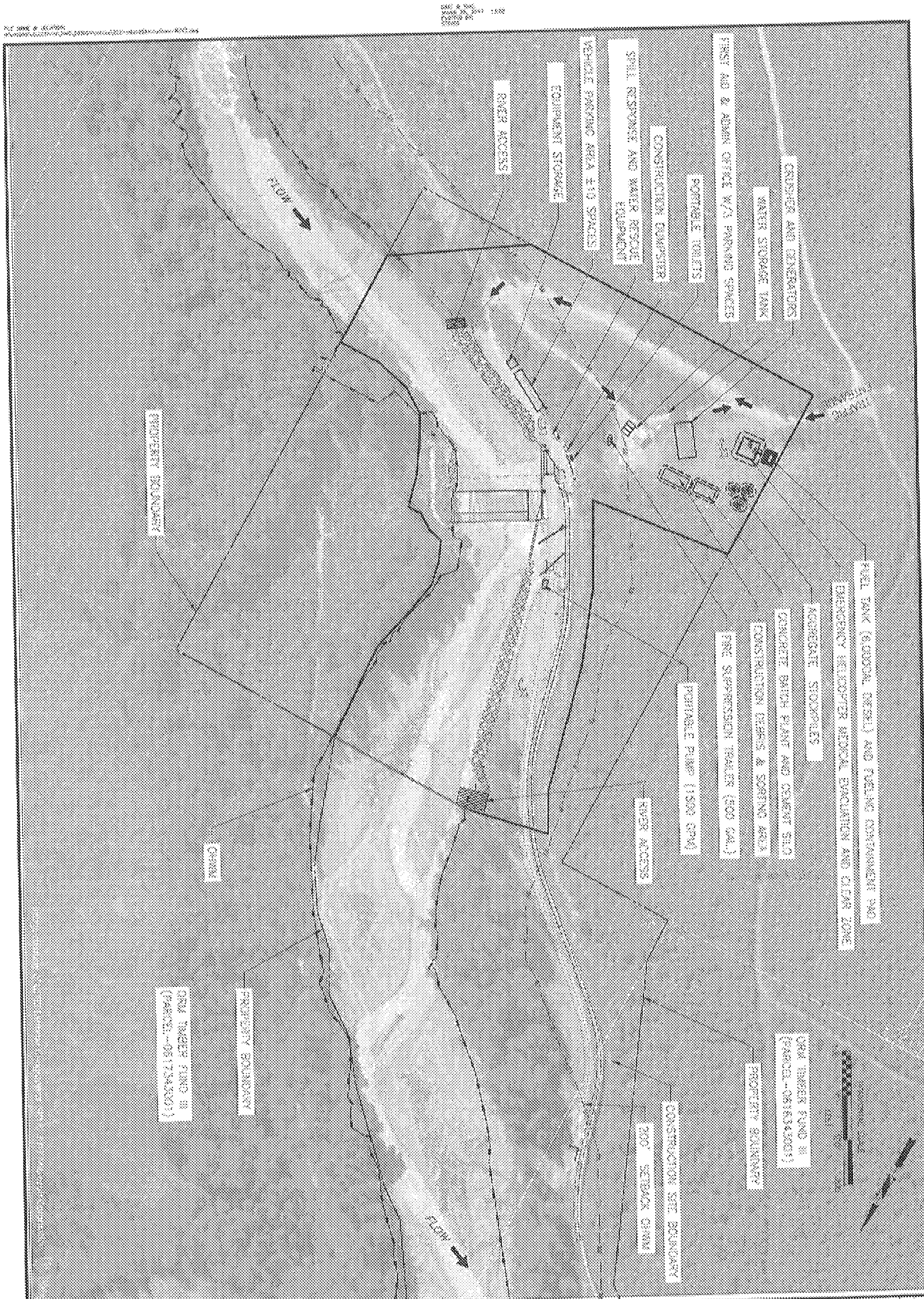

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

TEMPORARY SITE FACILITIES AND BOUNDARIES

PIERCE COUNTY WASHINGTON

Electron HYDRO

C-1

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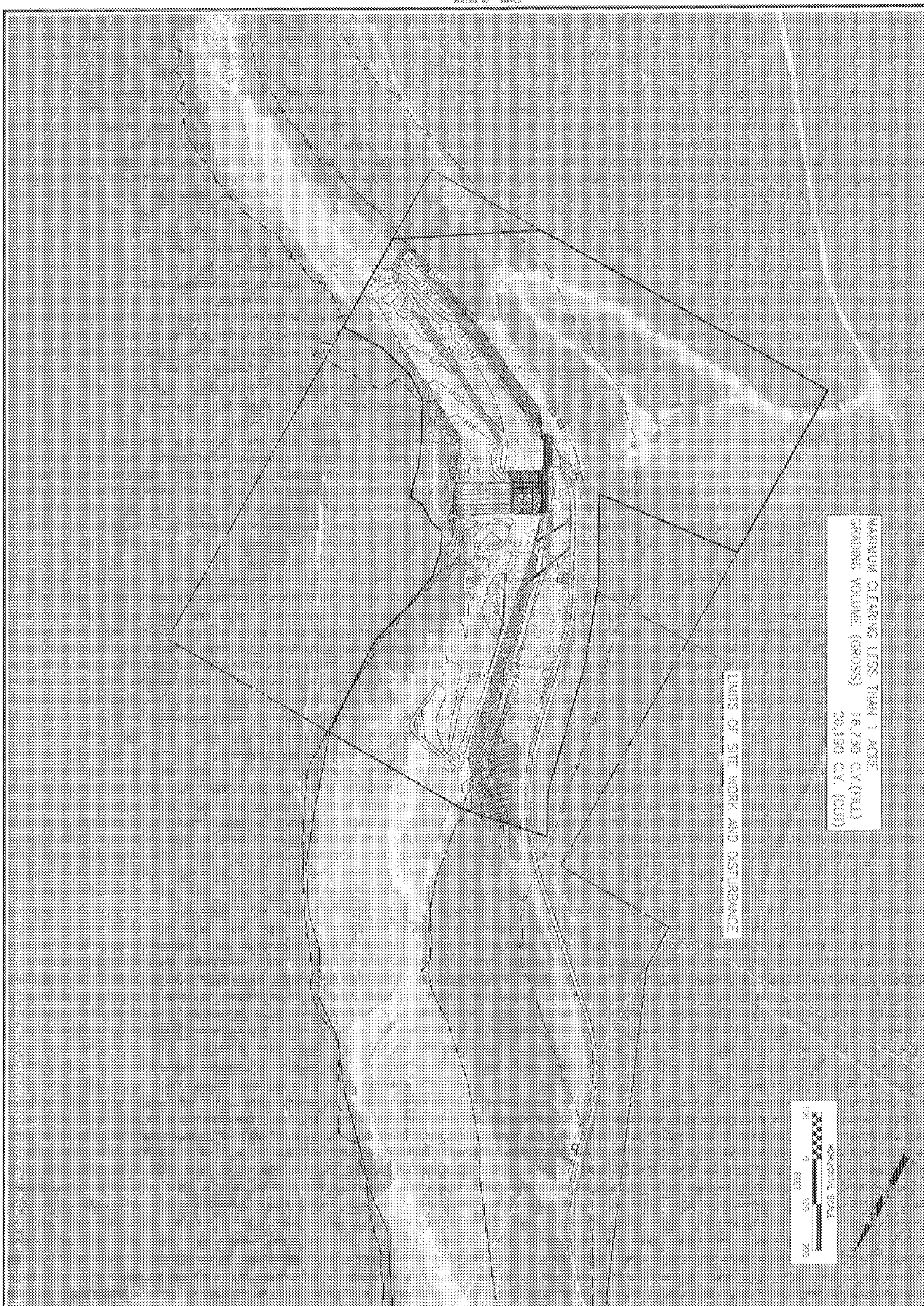

INTAKE AND DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

SITE WORK AND GRADING PLAN

PIERCE COUNTY WASHINGTON

DATE: 03/28/2017

SHEET 7 OF 20

DRAWING C-2

NO.	DATE	REVISION	BY	CK
1		PERMIT SET		

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

TEMPORARY COFFERDAM AND WATER MANAGEMENT PHASING

PIERCE COUNTY WASHINGTON

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DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

TEMPORARY COFFERDAM PLAN AND PROFILE

PIERCE COUNTY WASHINGTON

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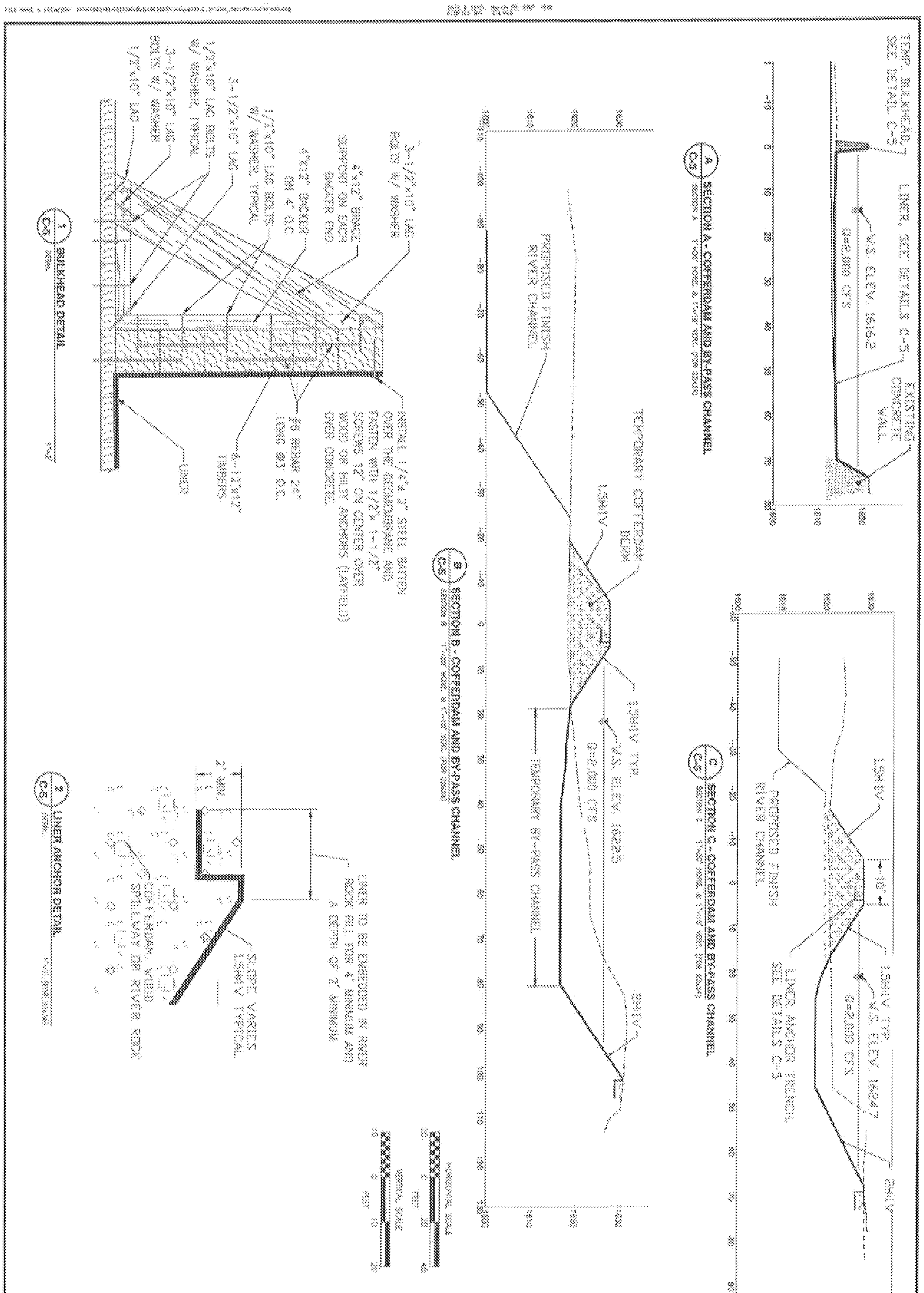

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DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

TEMPORARY COFFERDAM SECTION AND DETAILS

PIERCE COUNTY WASHINGTON

DATE 03/28/2017

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FLOW
DIVERSION & SPILLWAY PLAN VIEW
DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION
BLADDER SPILLWAY PLAN
PIERCE COUNTY
WASHINGTON
Electron HYDRO
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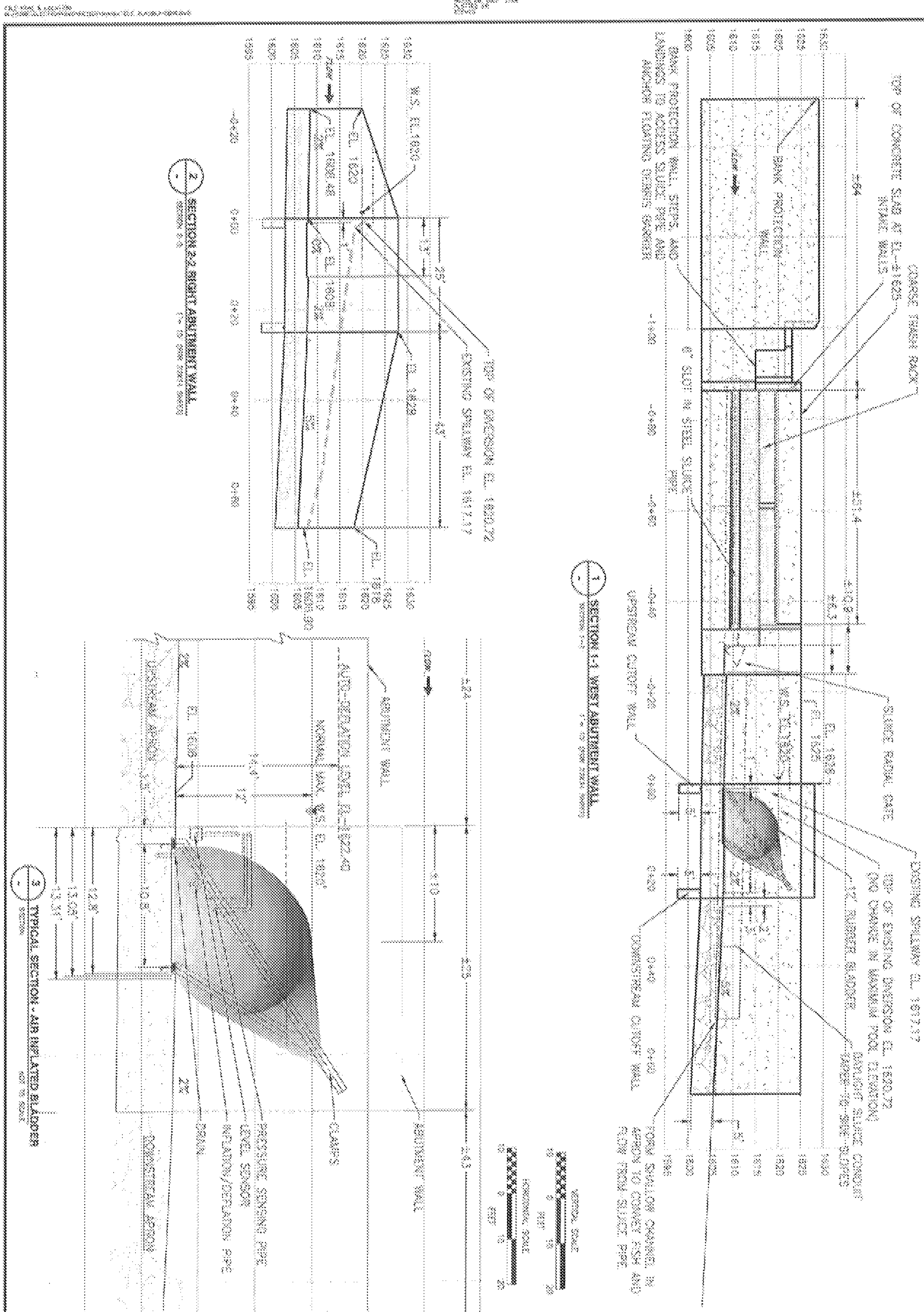

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

BLADDER SPILLWAY SECTIONS

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 01/26/2017

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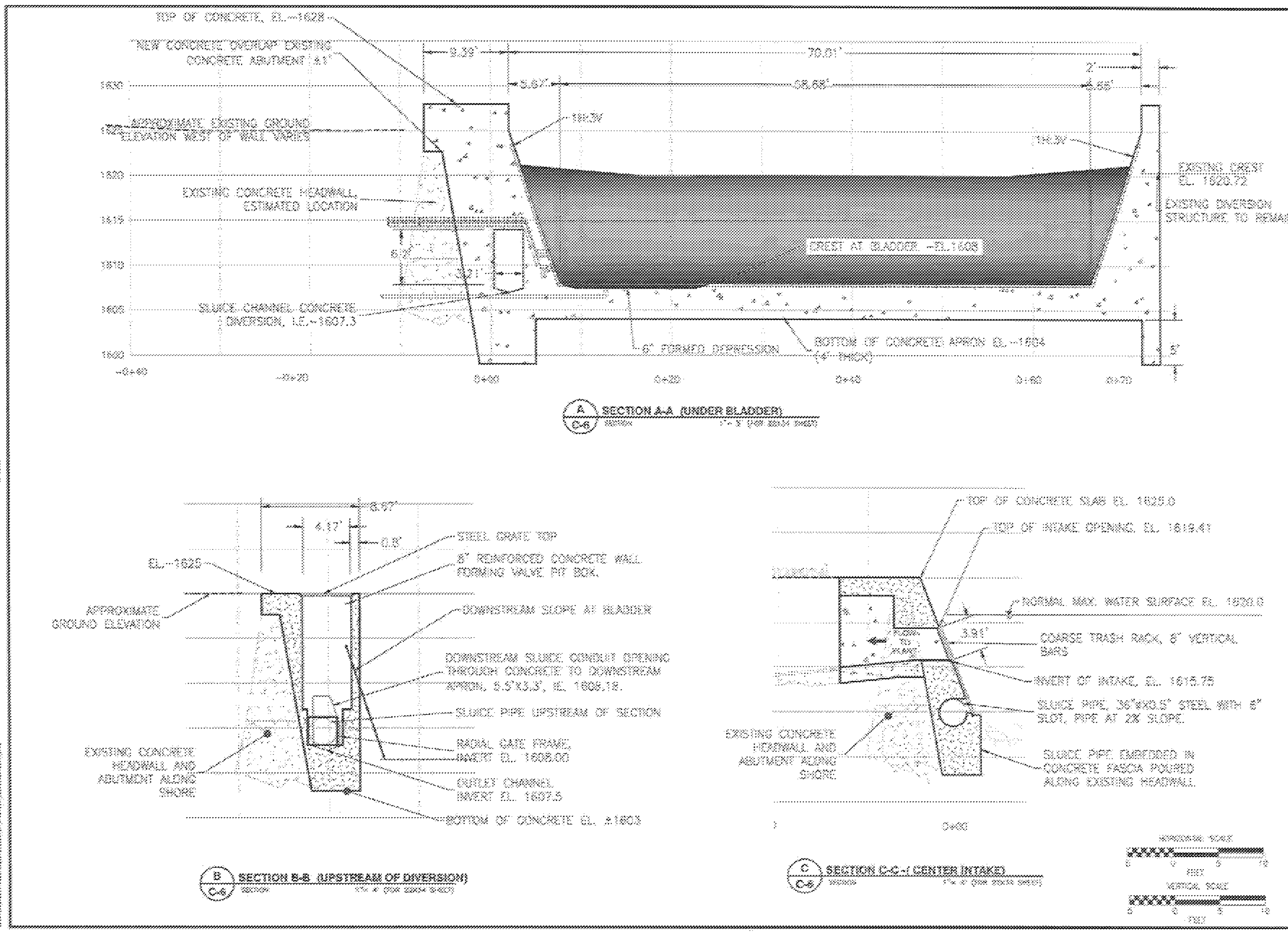

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

INTAKE AND BLADDER SPILLWAY SECTIONS

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 02/28/2017

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DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION
ROCK CHUTE #1
PLAN AND PROFILE
PIERCE COUNTY
WASHINGTON
Electron HYDRO
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DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

ROCK CHUTE #2 PLAN AND PROFILE

PIERCE COUNTY WASHINGTON

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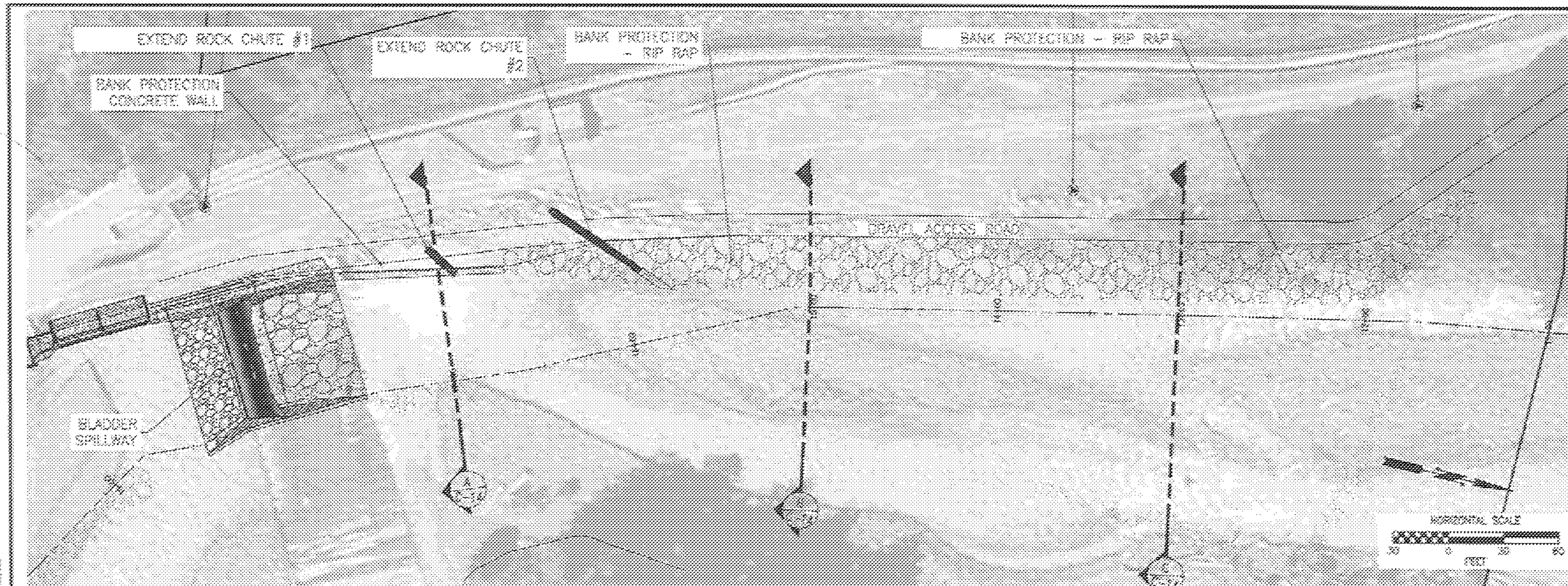
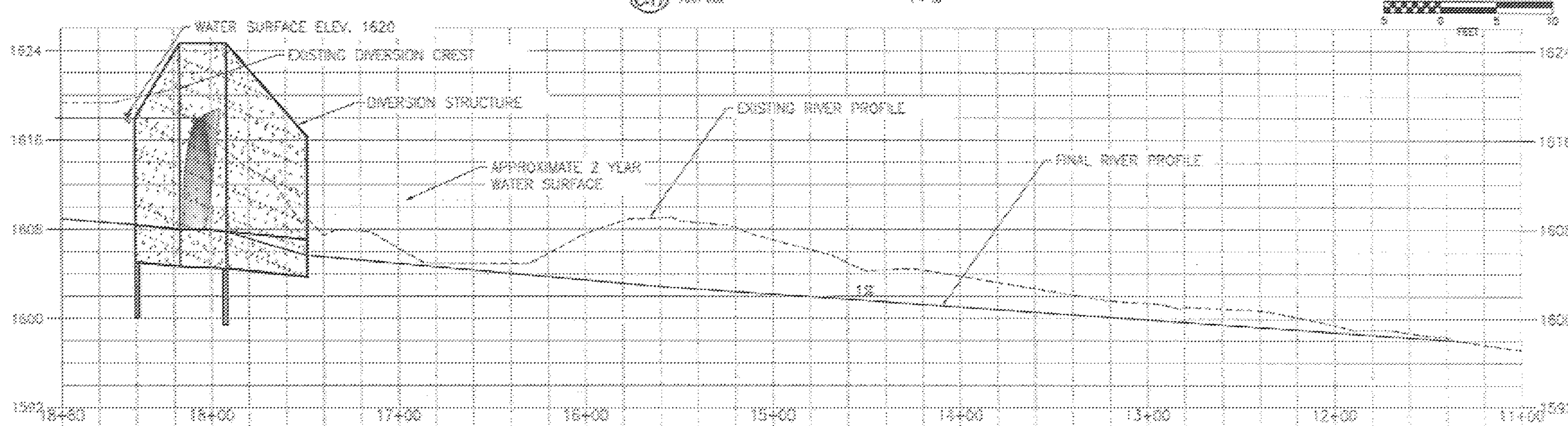
FLOW
BANK PROTECTION UPSTREAM PLAN - PLAN VIEW
BANK PROTECTION UPSTREAM PROFILE
DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION
BANK PROTECTION - UPSTREAM PLAN AND PROFILE
PIERCE COUNTY WASHINGTON
Electron HYDRO



1 C-17 DOWNSTREAM PROTECTION - PLAN VIEW



2 C-17 DOWNSTREAM PROTECTION - PROFILE

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

BANK PROTECTION – DOWNSTREAM PLAN AND PROFILE

PIERCE COUNTY WASHINGTON

Electron HYDRO

DATE: 03/28/2017

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DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

BANK PROTECTION UPSTREAM SECTION AND DETAILS

PIERCE COUNTY WASHINGTON

Electron HYDRO

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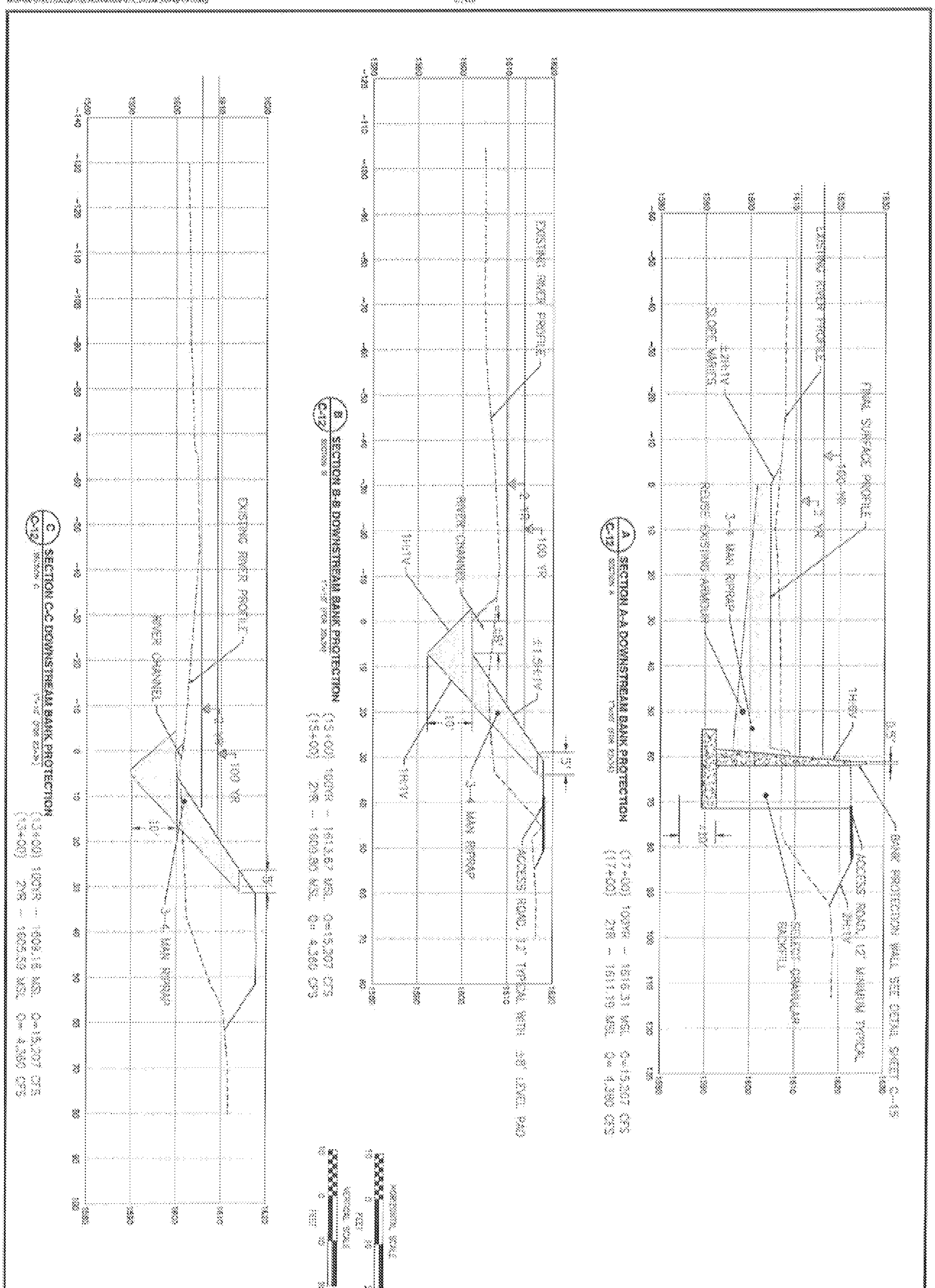

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

BANK PROTECTION - DOWNSTREAM SECTION AND DETAILS

PIERCE COUNTY WASHINGTON

Electron HYDRO

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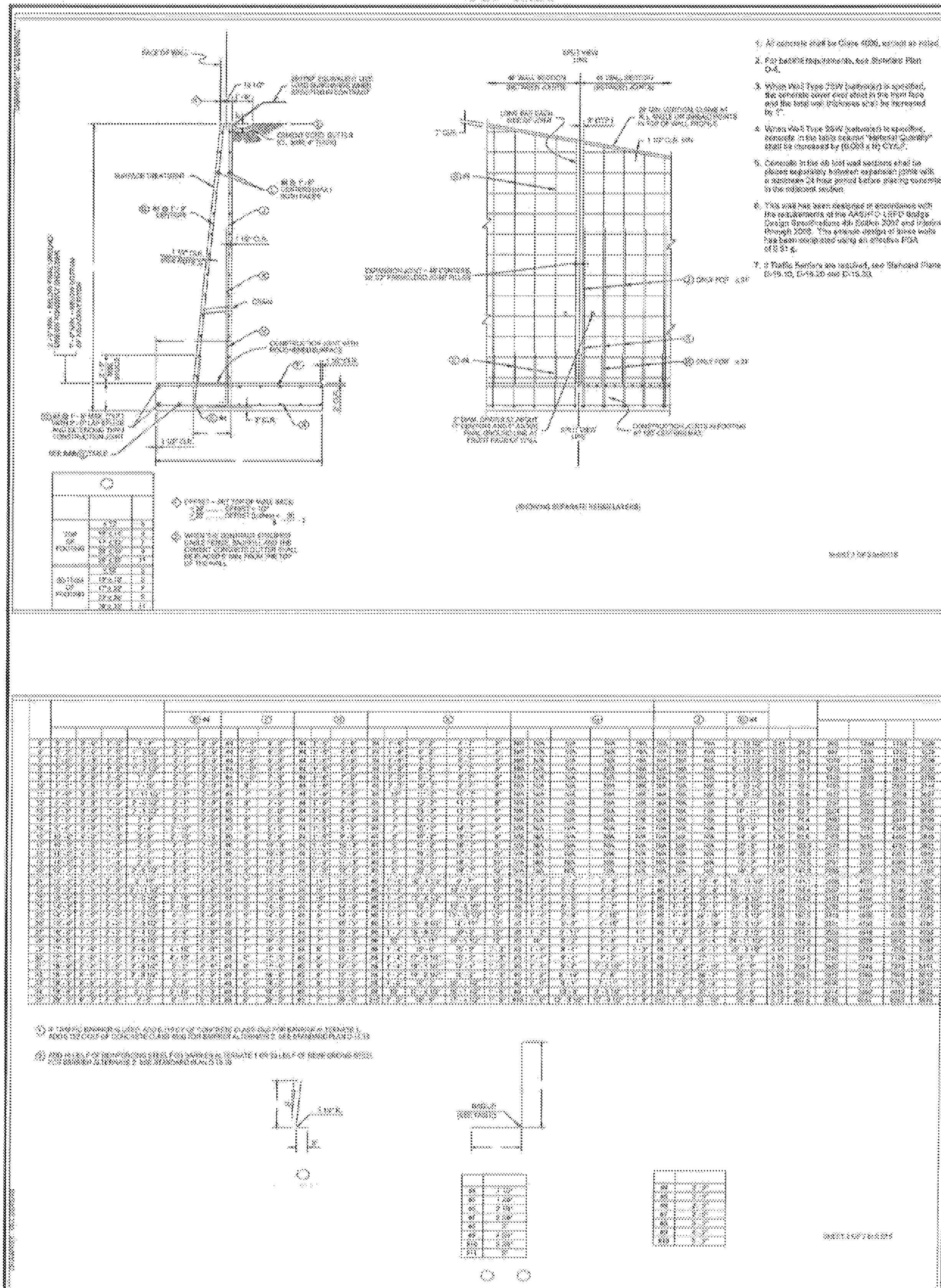

SHEET C-15	JOB: 11011906 · DATE: 07/24/2017

DIVERSION REPAIR, SPILLWAY REPLACEMENT AND BANK PROTECTION

DETAILS

PIERCE COUNTY WASHINGTON

Electron HYDRO

NO.	DATE	REVISION	BY	CK

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